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**TRANSMITTAL  
FORM**

(to be used for all correspondence after initial filing)

<b>TRANSMITTAL FORM</b>  (to be used for all correspondence after initial filing)	<b>Application Number</b>	10/808,117	
	<b>Filing Date</b>	March 24, 2004	
	<b>First Named Inventor</b>	Gunter	
	<b>Group Art Unit</b>	2882	
	<b>Examiner Name</b>	Unassigned	
<b>Total Number of Pages in This Submission</b>		<b>Attorney Docket Number</b>	6301.00002

**ENCLOSURES (check all that apply)**

<input type="checkbox"/> Fee Transmittal Form  <input type="checkbox"/> Fee Attached  <input type="checkbox"/> Amendment / Response  <input type="checkbox"/> After Final  <input type="checkbox"/> Affidavits/declaration(s)  <input type="checkbox"/> Extension of Time Request  <input type="checkbox"/> Express Abandonment Request  <input checked="" type="checkbox"/> Information Disclosure Statement  <input type="checkbox"/> Certified Copy of Priority Document(s)  <input type="checkbox"/> Response to Missing Parts/ Incomplete Application  <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application)  <input type="checkbox"/> Drawing(s)  <input type="checkbox"/> Licensing-related Papers  <input type="checkbox"/> Petition  <input type="checkbox"/> Petition to Convert to a Provisional Application  <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address  <input type="checkbox"/> Terminal Disclaimer  <input type="checkbox"/> Request for Refund  <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance Communication to Group  <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences  <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief)  <input type="checkbox"/> Proprietary Information  <input type="checkbox"/> Status Letter  <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): <b>PTO/SB/08a (3 pages)</b> <b>48 References</b> <b>Return Receipt Postcard</b> <b>Express Mail Certificate</b>			
<table border="1"><tr><td><b>Remarks</b></td><td rowspan="2">The Commissioner is authorized to charge any fees in connection with this correspondence to Deposit Account No. 19-0733. A duplicate of this sheet is enclosed.  Express Mail No. EV 306401331 US</td></tr><tr><td></td></tr></table>			<b>Remarks</b>	The Commissioner is authorized to charge any fees in connection with this correspondence to Deposit Account No. 19-0733. A duplicate of this sheet is enclosed.  Express Mail No. EV 306401331 US	
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<b>Firm or Individual name</b>	Kenneth F. Smolik Banner & Witcoff, Ltd.
<b>Signature</b>	<i>Kenneth F. Smolik</i>
<b>Date</b>	August 18, 2004

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**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

(Attorney Docket No. 006301.00002)

In re U.S. Patent Application of Gunter	)	
	)	
Application No. 10/808,117	)	Group Art Unit: 2882
	)	
Filed: March 24, 2004	)	Examiner: Unassigned
	)	
FOR: FILTERED BACKPROJECTION	)	Confirmation No. 4509
ALGORITHMS FOR COMPTON CAMERAS	)	
IN NUCLEAR MEDICINE	)	
	)	

**INFORMATION DISCLOSURE STATEMENT**

Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Pursuant to 37 CFR §1.97 and 1.98, the Applicant wishes to make the following references of record in the above-identified application. This Information Disclosure Statement is in compliance with the continuing duty of candor as set forth in 37 CFR §1.56. Copies of the references cited below are enclosed. The references are also listed on the enclosed and completed form PTO/SB/08A.

This Information Disclosure Statement is filed under 37 CFR §1.97(b) within three months of this application's filing date or before the mailing date of a first Office Action on the merits. Accordingly, there is no fee due for filing this Information Disclosure Statement.

Under 37 CFR §1.97(g), the filing of this Information Disclosure Statement shall not be construed as a representation that a search has been made.

Under 37 CFR §1.97(h), the filing of this Information Disclosure Statement shall not be construed to be an admission that the cited references are, or are considered to be, material to patentability as defined in 37 CFR §1.56(b).

## REFERENCES

- A.C. Sauve, A.O. Hero, III, W.L. Rogers, S.J. Wilderman and N.H. Clinthorne, "3D Image Reconstruction for a Compton SPECT Camera Model," IEEE Transactions on Nuclear Science, Vol. 46, No. 6, pp. 2075-2084, December 1999
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- C.J. Solomon and R.J. Ott, "Gamma Ray Imaging with Silicon Detectors – A Compton Camera for Radionuclide Imaging in Medicine," Nuclear Instruments and Methods in Physics Research, A273, pp. 787-792 (1988)
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- F. Biggs, L.B. Mendelsohn, J.B. Mann, "Hartree-Fock Compton Profiles for the Elements," Atomic Data and Nuclear Data Tables, Vol. 16, No. 3, pp. 201-206, September 1975
- G. Matscheko, G.A. Carlsson and R. Ribberfors, "Compton Spectroscopy in the Diagnostic X-Ray Energy Range. II Effects of Scattering Material and Energy Resolution," Phys. Med. Biol., Vol. 34, No. 2, pp. 199-208, September 1988
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- J.D. Kurfess, "Compton Scatter Imaging in Astrophysics," IEEE Transactions on Nuclear Science, Vol. 45, No. 3, pp. 936-942, June 1988
- J.D. Valentine, C. Bonnerave and R.C. Rohe, "Energy-Subtraction Compton Scatter Camera Design Considerations: A Monte Carlo Study of Timing and Energy Resolution Effects," IEEE Transactions on Nuclear Science, Vol. 44, No. 3, pp. 1134-1139, June 1997
- J.E. Gormely, W.L. Rogers, N.H. Clinthorne, D.K. Wehe and G.F. Knoll, "Experimental Comparison of Mechanical and Electronic Gamma-Ray Collimation," Nuclear Instruments and Methods in Physics Research, A397, pp. 440-447 (1997)

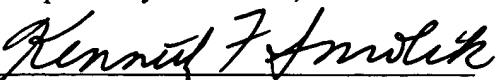
- J.W. LeBlanc, N.H. Clinthorne, C. Hua, W.L. Rogers, D.K. Wehe, S.J. Wilderman, "*A Compton Camera for Nuclear Medicine Applications Using  $^{113m}\text{In}$* ," Nuclear Instruments and Methods in Physics Research, A422, pp. 735-739 (1999)
- J.W. LeBlanc, N.H. Clinthorne, C-H Hua, E. Nygard, W.L. Rogers, D.K. Weh, P. Weilhammer and S.J. Wilderman, "*C-SPRINT: A Prototype Compton Camera System for Low Energy Gamma Ray Imaging*," IEEE Transactions on Nuclear Science, Vol. 45, No. 3, pp. 943-949, June 1998
- J.W. LeBlanc, N.H. Clinthorne, C-H Hua, E. Nygard, W.L. Rogers, D.K. Wehe, P. Weilhammer, S.J. Wilderman, "*Experimental Results from the C-SPRINT Prototype Compton Camera*," IEEE Transactions on Nuclear Science, Vol. 46, No. 3, pp. 201-204, June 1999
- L.C. Parra, "*Reconstruction of Cone-Beam Projections from Compton Scattered Data*," IEEE Transactions on Nuclear Science, Vol. NS-47, pp. 1543-1550 (2000)
- M. Hirasawa, T. Tomitani and S. Shibata, "*New Analytical Method for Three Dimensional Image Reconstruction in Multitracer Gamma-Ray Emission Imaging; Compton Camera for Multitracer*," RIKEN Review No. 35, pp. 118-119, May 2001, Focused on New Trends in Bio-Trace Elements Research
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- M. Singh and D. Doria "*Germanium-Scintillation Camera Coincidence Detection studies for Imaging Single Photon Emitters*," IEEE Transactions on Nuclear Science, Vol. NS-31, No. 1, pp. 594-598, February 1984
- M. Singh and D. Doria "*Single Photon Imaging with Electronic Collimation*," IEEE Transactions on Nuclear Science, Vol. NS-32, No. 1, pp. 843-847, February 1985
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- M. Singh, "*An Electronically Collimated Gamma Camera for Single Photon Emission Computed Tomography, Part I: Theoretical Considerations and Design Criteria*," Medical Physics, Vol. 10, No. 4, pp. 421-427, July/August 1983
- M. Singh, R. Leahy, R. Brechner and T. Hebert, "*Noise Propagation in Electronically Collimated Single Photon Imaging*," IEEE Transactions on Nuclear Science, Vol. 35, No. 1, pp. 772-777, February 1988
- M.G. Scannavini, R.D. Speller, G.J. Royle, I. Cullum, M. Raymond, G. Halland G. Iles, "*A Possible Role for Silicon Microstrip Detectors in Nuclear Medicine: Compton Imaging of Positron Emitters*," Nuclear Instruments and Methods in Physics Research, A477, pp. 514-520 (2002)

- M.J. Cree and P.J. Bones, "Towards Direct Reconstruction from a Gamma Camera Based on Compton Scattering," IEEE Transactions on Medical Imaging, Vol. 13, No. 2, pp. 398-407, June 1994
- N. Dogan, K.D. Wehe and A.Z. Akcasu, "A Source Reconstruction Method for Multiple Scatter Compton Cameras", IEEE Transactions on Nuclear Science, Vol. 39, No. 5, pp. 1427-1430, October 1992
- N.H. Clinthorne, C. Ng, J. Strobel, C. Hua, J.W. LeBlanc, S.J. Wilderman and W.L. Rogers, "Determining Detector Requirements for Medical Imaging Applications," Nuclear Instruments and Methods in Physics Research, A489, pp. 501-507 (1998)
- N.H. Clinthorne, S.J. Wilderman, C. Hua, J.W. LeBlanc and W.L. Rogers, "Choice of Scattering Detector for Compton-Scatter Cameras," Journal of Nuclear Medicine, Vol. 39, No. 5, Proceedings of the 45<sup>th</sup> Annual Meeting, Scientific Papers, No. 193, May 1998 Supplement
- P. von Ballmoos, R. Diehl, and V. Schönfelder, "Imaging the Gamma-Ray Sky with Compton Telescopes," Astronomy and Astrophysics, pp. 396-406, February 1989
- R. Basko, G.L. Zeng, and G.T. Gullberg, "Analytical Reconstruction Formula for One-Dimensional Compton Camera," IEEE Transactions on Nuclear Science, Vol. 44, No. 3, pp. 1342-1346, June 1977
- R. Basko, G.L. Zeng, and G.T. Gullberg, "Application of Spherical Harmonics to Image Reconstruction for the Compton Camera," Phys. Med. Biol. 43, pp. 887-894 (1998)
- R. Diehl, "The Comptel Experiment on the NASA Gamma-Ray Observatory," Space Science Reviews 49, pp. 85-106, June 1988
- R.A. Kroeger, W.N. Johnson, J.D. Kurfess and B.F. Philips, "Gamma Ray Polarimetry Using a Position Sensitive Germanium Detector," Nuclear Instruments and Methods in Physics Research, A436, pp. 165-169 (1999)
- R.C. Rohe and J.D. Valentine, "An Energy-Subtraction Compton Scatter camera Design for In Vivo Medical Imaging of Radiopharmaceuticals," IEEE Transactions on Nuclear Science, Vol. 43, No. 6, pp. 3256-3263, December 1996
- R.C. Rohe, M.M. Sharfi, K.A. Kecvar, J.D. Valentine and C. Bonnerave, "The Spatially-Variant Backprojection Point Kernel Function of an Energy-Subtraction Compton Scatter Camera for Medical Imaging," IEEE Transactions on Nuclear Science, Vol. 44, No. 6, pp. 2477-2482, December 1977
- R.R. Brechner and M. Singh, "Reconstruction of Electronically Collimated Images Obtained from Single Photon Emitters Using a Spherical System of Coordinates," IEEE Transactions on Nuclear Science, Vol. 33, No. 1, pp. 583-586, February 1986
- R.R. Brechner and Manbir Singh, "Iterative Reconstruction of Electronically Collimated Spect Images," IEEE Transactions on Nuclear Science, Vol. 37, No. 3, pp. 1328-1332, June 1990

- R.R. Brechner, M. Singh and R. Leahy, "Computer Simulated Studies of Tomographic Reconstruction with an Electronically Collimated Camera for Spect," IEEE Transactions on Nuclear Science, Vol. NS-34, No. 1, pp. 369-373, February 1987
- R.W. Todd, J.M. Nightingale and D.B. Everett, "A Proposed  $\gamma$  Camera," Nature, Vol. 251, pp. 132-134, September 1974,
- S.J. Wilderman, W.L. Rogers, G.F. Knoll and J.C. Engdahl, "Fast Algorithm for List Mode Back-Projection of Compton Scatter Camera Data," IEEE Transactions on Nuclear Science, Vol. 45, No. 3, pp. 957-962, June 1998
- T. Hebert, R. Leahy and M. Singh, "Three-Dimensional Maximum-Likelihood Reconstruction for an Electronically Collimated Single-Photon-Emission Imaging System," Optical Society of America, Vol. 7, No. 7, pp. 1305-1313, July 1990
- T. Kamae, N. Hanada and R. Enomoto, "Prototype Design of Multiple Compton Gamma-Ray Camera," IEEE Transactions on Nuclear Science, Vol. 35, No. 1, pp. 352-355, February 1988
- T. Kamae, R. Economoto and N. Hanada, "A New Method to Measure Energy, Direction, and Polarization of Gamma Rays." Nuclear Instruments and Methods in Physics Research, A260, pp. 254-257 (1987)
- T. Tomitani and M. Hirasawa, "Image Reconstruction from Limited Angle Compton Camera Data", Phys. Med. Biol. 47, pp. 2129-2145 (2002)
- V. Schönfelder, R. Diehl, G.G. Lichti, H. Steinle, B.N. Swanenburg, A.J.M. Deerenberg, H. Aarts, J. Lockwood, W. Webber, J. Macri, J. Ryan, G. Simpson, B.G. Taylor, K. Bennett and M. Snelling, "The Imaging Compton Telescope Comptel on the Gamma Ray Observatory," IEEE Transactions on Nuclear Science, Vol. NS-31, No. 1, pp. 766-770, February 1984
- V. Schönfelder, U. Graser and R. Diehl, "Properties and Performance of the MPI Balloon Borne Compton Telescope," Astronomy and Astrophysics, pp. 138-151, February 1982
- Y.F. Yang, Y. Gono, S. Motomura, S. Enomoto, and Y. Yano, "Monte Carlo Simulations of the Performance of a Compton Camera Consisting of Position-Sensitive Germanium Detectors," Nuclear Instruments and Methods in Physics Research, A482, pp. 806-813 (2002)

Date: August 18, 2004

Respectfully submitted,

By: 

Kenneth F. Smolik

Registration No. 44,344

BANNER & WITCOFF, LTD.

10 South Wacker Drive, Suite 3000

Chicago, Illinois 60606

Telephone: 312-463-5000

Facsimile: 312-463-5001



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First Named Inventor	Gunter
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Examiner Name	Unassigned
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### U.S. PATENT DOCUMENTS

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	23	M. Singh, "An Electronically Collimated Gamma Camera for Single Photon Emission Computed Tomography, Part I: Theoretical Considerations and Design Criteria," Medical Physics, Vol. 10, No. 4, pp. 421-427, July/August 1983	
	24	M. Singh, R. Leahy, R. Brechner and T. Hebert, "Noise Propagation in Electronically Collimated Single Photon Imaging," IEEE Transactions on Nuclear Science, Vol. 35, No. 1, pp. 772-777, February 1988	
	25	M.G. Scannavini, R.D. Speller, G.J. Royle, I. Cullum, M. Raymond, G. Halland G. Iles, "A Possible Role for Silicon Microstrip Detectors in Nuclear Medicine: Compton Imaging of Positron Emitters," Nuclear Instruments and Methods in Physics Research, A477, pp. 514-520 (2002)	
	26	M.J. Cree and P.J. Bones, "Towards Direct Reconstruction from a Gamma Camera Based on Compton Scattering," IEEE Transactions on Medical Imaging, Vol. 13, No. 2, pp. 398-407, June 1994	
	27	N. Dogan, K.D. Wehe and A.Z. Akcasu, "A Source Reconstruction Method for Multiple Scatter Compton Cameras," IEEE Transactions on Nuclear Science, Vol. 39, No. 5, pp. 1427-1430, October 1992	
	28	N.H. Clinthorne, C. Ng, J. Strobel, C. Hua, J.W. LeBlanc, S.J. Wilderman and W.L. Rogers, "Determining Detector Requirements for Medical Imaging Applications," Nuclear Instruments and Methods in Physics Research, A489, pp. 501-507 (1998)	
	29	N.H. Clinthorne, S.J. Wilderman, C. Hua, J.W. LeBlanc and W.L. Rogers, "Choice of Scattering Detector for Compton-Scatter Cameras," Journal of Nuclear Medicine, Vol. 39, No. 5, Proceedings of the 45 <sup>th</sup> Annual Meeting, Scientific Papers, No. 193, May 1998 Supplement	
	30	P. von Ballmoos, R. Diehl, and V. Schönfelder, "Imaging the Gamma-Ray Sky with Compton Telescopes," Astronomy and Astrophysics, pp. 396-406, February 1989	
	31	R. Basko, G.L. Zeng, and G.T. Gullberg, "Analytical Reconstruction Formula for One-Dimensional Compton Camera," IEEE Transactions on Nuclear Science, Vol. 44, No. 3, pp. 1342-1346, June 1977	
	32	R. Basko, G.L. Zeng, and G.T. Gullberg, "Application of Spherical Harmonics to Image Reconstruction for the Compton Camera," Phys. Med. Biol. 43, pp. 887-894 (1998)	
	33	R. Diehl, "The Comptel Experiment on the NASA Gamma-Ray Observatory," Space Science Reviews 49, pp. 85-106, June 1988	
	34	R.A. Kroeger, W.N. Johnson, J.D. Kurfess and B.F. Philips, "Gamma Ray Polarimetry Using a Position Sensitive Germanium Detector," Nuclear Instruments and Methods in Physics Research, A436, pp. 165-169 (1999)	

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	35	R.C. Rohe and J.D. Valentine, "An Energy-Subtraction Compton Scatter camera Design for In Vivo Medical Imaging of Radiopharmaceuticals," IEEE Transactions on Nuclear Science, Vol. 43, No. 6, pp. 3256-3263, December 1996	
	36	R.C. Rohe, M.M. Sharfi, K.A. Kecvar, J.D. Valentine and C. Bonnerave, "The Spatially-Variant Backprojection Point Kernel Function of an Energy-Subtraction Compton Scatter Camera for Medical Imaging," IEEE Transactions on Nuclear Science, Vol. 44, No. 6, pp. 2477-2482, December 1977	
	37	R.R. Brechner and M. Singh, "Reconstruction of Electronically Collimated Images Obtained from Single Photon Emitters Using a Spherical System of Coordinates," IEEE Transactions on Nuclear Science, Vol. 33, No. 1, pp. 583-586, February 1986	
	38	R.R. Brechner and Manbir Singh, "Iterative Reconstruction of Electronically Collimated Spect Images," IEEE Transactions on Nuclear Science, Vol. 37, No. 3, pp. 1328-1332, June 1990	
	39	R.R. Brechner, M. Singh and R. Leahy, "Computer Simulated Studies of Tomographic Reconstruction with an Electronically Collimated Camera for Spect," IEEE Transactions on Nuclear Science, Vol. NS-34, No. 1, pp. 369-373, February 1987	
	40	R.W. Todd, J.M. Nightingale and D.B. Everett, "A Proposed $\gamma$ Camera," Nature, Vol. 251, pp. 132-134, September 1974,	
	41	S.J. Wilderman, W.L. Rogers, G.F. Knoll and J.C. Engdahl, "Fast Algorithm for List Mode Back-Projection of Compton Scatter Camera Data," IEEE Transactions on Nuclear Science, Vol. 45, No. 3, pp. 957-962, June 1998	
	42	T. Hebert, R. Leahy and M. Singh, "Three-Dimensional Maximum-Likelihood Reconstruction for an Electronically Collimated Single-Photon-Emission Imaging System," Optical Society of America, Vol. 7, No. 7, pp. 1305-1313, July 1990	
	43	T. Kamae, N. Hanada and R. Enomoto, "Prototype Design of Multiple Compton Gamma-Ray Camera," IEEE Transactions on Nuclear Science, Vol. 35, No. 1, pp. 352-355, February 1988	
	44	T. Kamae, R. Economoto and N. Hanada, "A New Method to Measure Energy, Direction, and Polarization of Gamma Rays," Nuclear Instruments and Methods in Physics Research, A260, pp. 254-257 (1987)	
	45	T. Tomitani and M. Hirasawa, "Image Reconstruction from Limited Angle Compton Camera Data", Phys. Med. Biol. 47, pp. 2129-2145 (2002)	
	46	V. Schönfelder, R. Diehl, G.G. Lichti, H. Steinle, B.N. Swanenburg, A.J.M. Deerenberg, H. Aarts, J. Lockwood, W. Webber, J. Macri, J. Ryan, G. Simpson, B.G. Taylor, K. Bennett and M. Snelling, "The Imaging Compton Telescope Comptel on the Gamma Ray Observatory," IEEE Transactions on Nuclear Science, Vol. NS-31, No. 1, pp. 766-770, February 1984	
	47	V. Schönfelder, U. Graser and R. Diehl, "Properties and Performance of the MPI Balloon Borne Compton Telescope," Astronomy and Astrophysics, pp. 138-151, February 1982	
	48	Y.F. Yang, Y. Gono, S. Motomura, S. Enomoto, and Y. Yano, "Monte Carlo Simulations of the Performance of a Compton Camera Consisting of Position-Sensitive Germanium Detectors," Nuclear Instruments and Methods in Physics Research, A482, pp. 806-813 (2002)	

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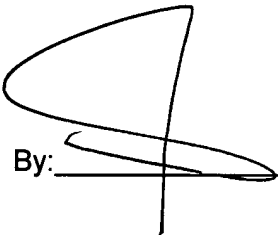


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